

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

LISTING OF CLAIMS:

1. (original) A wafer support device comprising:
 - a fixed base;
 - a guiding device on said fixed base;
 - a movable base disposed so as to move in a vertical direction with respect to the fixed base by said guiding device;
 - a first pressing device fixed on the fixed base, said first pressing device pressing said movable base;
 - a θ stage rotatably disposed on said movable base with the vertical direction as a rotation axis;
 - a linear motor fixed on said fixed base;
 - a contact bar disposed on said movable base;
 - a load control device controlling a load of pressing; and
 - a controller controlling a pressing force by said first pressing device based on said load detected by a load sensor,
- wherein said first pressing device has a cylinder which is fixed on said fixed base and has a main pressurizing chamber and a sub-pressurizing chamber, a piston rod vertically moving in the main pressurizing chamber and the sub-pressurizing chamber, respectively, a main

pressure controller controlling a pressure in said main pressurizing chamber, and a sub pressure controller controlling a pressure in said sub-pressurizing chamber.

2. (original) The wafer support device according to claim 1,
further comprising an adsorption stage disposed on said θ stage, said adsorption stage fixing a wafer.

3. (original) The wafer support device according to claim 1,
wherein said load control device comprises said load sensor disposed on said linear motor, said load sensor detecting a load of pressing by said contact bar when said contact bar contacts said movable base.

4. (original) The wafer support device according to claim 1,
wherein said guiding device comprises a first cross roller guide.

5. (original) The wafer support device according to claim 3, further comprising
a sensor base which said load sensor is mounted on,
a second cross roller guide guiding said sensor base in a vertical direction with respect to said fixed base,
a position sensor fixed on said fixed base, said position sensor detecting a vertical position of said sensor base, and

a driving member which said sensor base is mounted on, said driving member driving said sensor base in the vertical direction and controlling a vertical position of said load sensor.

6. (original) The wafer support device according to claim 5,
wherein said driving member has a fixed coil fixed on the fixed base, and a movable magnet to be floated by a magnetic action with said fixed coil.

7. (original) The wafer support device according to claim 5, wherein said driving member has a
motor fixed on said fixed base and a ball screw disposed on a driving axis of said motor,
wherein said sensor base is vertically driven by reciprocally rotating said ball screw.

8. (original) The wafer support device according to claim 5,
wherein said guiding device comprises an air bearing.

9. (original) The wafer support device according to claim 5,
wherein said guiding device comprises a plurality of second pressing devices.

10. (original) A wafer support method comprising:
providing a movable base having a stage loading a wafer;

providing compressed air into a main pressurizing chamber or a sub-pressurizing chamber;

moving said movable base by said compressed air in said main pressurizing chamber or said sub-pressurizing chamber;

moving said movable base by cross roller guide on a fixed base;

detecting a position of said movable base; and

controlling said position of said movable base according to said position detected.

11. (original) The wafer support method according to claim 10,

wherein said step of moving said movable base comprises driving said movable base by a linear motor.

12. (original) The wafer support method according to claim 10,

wherein said step of moving said movable base comprises driving said movable base by a rotary motor.

13. (original) The wafer support method according to claim 10, further comprising

controlling an amount of said compressed air into said main pressurizing chamber or said sub-pressurizing chamber.

Claims 14 and 15 (canceled)

16. (previously presented): A wafer support device comprising:

- a fixed base;
- a guiding device on said fixed base;
- a movable base disposed so as to move in a vertical direction with respect to the fixed base by said guiding device;
- a first pressing device fixed on the fixed base, said first pressing device pressing said movable base;
- a θ stage rotatably disposed on said movable base with the vertical direction as a rotation axis;
- a linear motor fixed on said fixed base;
- a contact bar disposed on said movable base;
- a load control device controlling a load of pressing; and
- a controller controlling a pressing force by said first pressing device based on said load,

wherein said first pressing device has a cylinder which is fixed on said fixed base and has a main pressurizing chamber and a sub-pressurizing chamber, a piston rod vertically moving in the main pressurizing chamber and the sub-pressurizing chamber, respectively, a main pressure controller controlling a pressure in said main pressurizing chamber, and a sub pressure controller controlling a pressure in said sub-pressurizing chamber.

17. (previously presented): The wafer support device according to claim 16,

wherein said load control device comprises a load sensor disposed on said linear motor, said load sensor detecting a load of pressing by said contact bar when said contact bar contacts said movable base.

18. (previously presented) The wafer support device according to claim 16, further comprising:

a sensor base on which a load sensor is mounted on,

a second cross roller guide guiding said sensor base in a vertical direction with respect to said fixed base,

a position sensor fixed on said fixed base, said position sensor detecting a vertical position of said sensor base, and

a driving member which said sensor base is mounted on, said driving member driving said sensor base in the vertical direction and controlling a vertical position of said load sensor.

19. (previously presented): The wafer support device according to claim 16, wherein said load of pressing is detected by a load sensor, and wherein said load sensor restricts said contact bar to moving upward and allows said contact bar to move downward when said contact bar contacts said load sensor.

20. (new) A wafer support device comprising:

a fixed base;

a movable base disposed so as to move in a vertical direction with respect to the fixed base;

a pressing device fixed on the fixed base, said pressing device pressing the movable base;

wherein the pressing device comprises a cylinder which is fixed on the fixed base and has a main pressurizing chamber and a sub-pressurizing chamber, a piston rod which has a first part and a second part vertically moving in the main pressurizing chamber and the sub-pressurizing chamber, respectively, a main pressure controller controlling a pressure in the main pressurizing chamber, and a sub pressure controller controlling a pressure in the sub-pressurizing chamber.

21. (new) The wafer support device according to claim 20, further comprising a detector which detects a position of the movable base and a controller which controls the pressing device.

22. (new) The wafer support device according to claim 20, further comprising a contact detection device which detects contact between a probe and the movable base or a wafer on the movable base.

23. (new) The wafer support device according to claim 20, further comprising a sensor base so as to move in a vertical direction with respect to the fixed base, a position sensor which detects a vertical position of the sensor base, and a driving device which drives the sensor base in the vertical direction.

24. (new) The wafer support device according to claim 20, further comprising a guiding device which guides the movable device to move in a vertical direction with respect to the fixed base.

25. (new) The wafer support device according to claim 20, further comprising a plurality of pressing devices.

26. (new) The wafer support device according to claim 23, wherein the driving device comprises a ball screw and a rotary motor.

27. (new) A wafer support method comprising:
providing a wafer on a movable base;
providing compressed air into a main pressurizing chamber and a sub-pressurizing chamber; and
moving the movable base by the compressed air in the main pressurizing chamber and the sub-pressurizing chamber.

28. (new) The wafer support method according to claim 27, further comprising detecting a position of the movable base; and
controlling the position of the movable base according to the position detected.

Amendment under 37 C.F.R. § 1.114(c)
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29. (new) The wafer support method according to claim 27, further comprising detecting a position of a sensor base with respect to the movable base; and
controlling the position of the sensor base according to the detected position of the sensor base with respect to the movable base.